

UC Berkeley

Research and Occasional Papers Series

Title

The Role of US Higher Education in the Global E-Learning Market

Permalink

<https://escholarship.org/uc/item/6p044256>

Author

van der Wende, Marijk

Publication Date

2002

Research & Occasional Paper Series: CSHE.1.02



UNIVERSITY OF CALIFORNIA, BERKELEY
<http://ishi.lib.berkeley.edu/cshe/>

THE ROLE OF US HIGHER EDUCATION IN THE GLOBAL E-LEARNING MARKET

January 2002

Marijk van der Wende*

Professor and Senior Research Associate
Center for Higher Education Policy Studies, University of Twente
P.O. Box 217
7500 AE Enschede
Tel: +31-53-4893271
Fax: +31-53-4340392
E-mail: m.c.vanderwende@cheps.utwente.nl
<http://www.utwente.nl/cheps/>

*Copyright 2002 Marijk van der Wende, all rights reserved.
This working paper is not to be quoted without the permission of the author.*

ABSTRACT

This paper analyzes system and institutional level responses to the growing demand for e-learning in the US in comparison with a number of other countries and regions. It reviews the external forces and factors that are driving institutions to introduce and use ICT in this area and investigates in particular the role of globalisation and increasing competition. The responses of institutions to the changing (global) environment are discussed with respect to e-learning models and international strategies. Finally, a number of future scenarios are presented as well as an outline for research on the strategic pathways institutions may choose in planning for the future.

Introduction

This paper reports on research undertaken during a visiting scholar period at the Center for Studies in Higher Education (CSHE) at the University of California, Berkeley. The research was carried out in the context of the CSHE project on "Higher Education in a Digital Age". It is also related to the research program 2001-2005 of the Center for Higher Education Policy Studies (CHEPS), in particular to its track 4: "New Technologies, New Providers, New Products".

CSHE's and CHEPS' research on the role of information and communication technology (ICT) in higher education have a common focus on the policy implications related to the introduction and use of ICT in higher education on both the institutional and system level. There is also a shared interest in the way in

* **Author's biographical information:** Marijk C. van der Wende is a professor and senior researcher at the Center for Higher Education Policy Studies (CHEPS) at the University of Twente in the Netherlands. She holds a chair in comparative higher education policy studies, with special reference to globalisation and network technologies. From September until December 2001, Marijk was a visiting scholar at the Centre for Studies in Higher Education (CSHE) at the University of California, Berkeley, and a CSHE/HEDA grant recipient.

which institutions are responding to a rapidly changing environment and their strategic planning for an “uncertain future”. It is acknowledged that the nature of this research subject necessitates an international comparative approach, not in the least place because the international environment is an important context factor for the developments in this area.

This paper will analyze system and institutional level responses to the growing demand for e-learning in the USA in comparison with a number of other countries and regions. It will review the external forces and factors that are driving institutions to introduce and use ICT in this area and will investigate in particular the role of globalisation and increasing competition. The responses of institutions to the changing (global) environment will be discussed with respect to e-learning models and international strategies. Finally, a number of future scenarios will be discussed as well as the strategic pathways an institution may choose in planning for the future.

External factors driving e-learning

External factors influencing the inner life of higher education institutions, including the use of ICT, can generally be distinguished into: economic, social, cultural, and technological factors as well as the changing role of governmental policy (Middlehurst, 2001, Mc. Burnie, 2001). The emergence of the knowledge economy, in which economic productivity and growth is increasingly dependent on the development and application of new knowledge, creates a growing demand for a highly educated and flexible work force, leading to a further massification of higher education and to an increasing need for lifelong learning opportunities. The process of globalisation, characterized by increasing global economic interdependence and international competition, leads to the emergence of an international higher education market in which a growing number of traditional and new types of higher education providers compete with each other. The process influences at the same time the role and responsibilities of the nation state in the higher education sector. ICT is both driving and enabling the processes toward a knowledge-driven global economy. It allows higher education providers to accommodate the specific needs of students in terms of mode, pace, place and time of study and to cater to different and new target groups and (niche) markets both locally and globally (CHEPS, 2000).

The growing and diversifying demand for higher education

From a global perspective, the growing demand for higher education can roughly be distinguished into two main trends. On the one hand the rapidly growing need for the widening of initial access to higher education. Globally the numbers of degree students are estimated to rise from 42 million in 1990 to 97 million in 2010 and 159 million by 2025 (West, 1997). This trend is observed in certain developing countries and in particular in transition countries (e.g. in Southeast Asia, Latin America and southern Africa), which are quickly integrating into world production and trade schemes and which often have a rapidly growing young population. And on the other hand, there is the increasing need for more diversified and flexible types of higher education, including lifelong learning, corporate training, etc., in countries that are changing from post-industrial into knowledge economies. In Western countries this trend is often combined with an ageing population, which makes the need for lifelong learning even more pertinent.

It is important to note that these trends are not mutually exclusive. For instance the state of California is facing a growing demand in both areas at the same time. This is the result of demographic growth (mainly related to immigration) and a strongly developed knowledge-economy (Silicon Valley). Yet other examples are certain industrialized provinces of China, where apart from the need for more initial access the demand for corporate training is also rising quickly. In these provinces, a large number of people need to be trained in the areas of international trade and finance, which are related to China's entrance to the WTO. (The Chinese government has consequently called for the help of US universities in this effort). Lastly, Greece, a member country of the European Union, is not (yet) able to accommodate the entire national demand for initial access to higher education. In fact only around one third of that country's students can find places in its public institutions. Other students have to go abroad or turn to foreign or private providers which operate in Greece (Patrinos, 1995).

Within the context of OECD countries, these two trends are leading to an increasingly mixed profile in the student population. In the context of initial higher education, usually regarded as ages 18-24, not only a continuing growth in demand can be observed, but also an alteration of the character of the student population. An increasing proportion of students here is older and studying part-time in combination with full or part-time employment. This new category is described as the "learning and earning" clientele. According to Kerrey (2000), only 16% of the college students in the US now fit the traditional 18-24 fulltime and live on campus profile. In the adult, continuing education, or lifelong learning market, which is characterized as the "earning and learning" market, and in which massive growth is already occurring, further exponential growth is widely predicted. (Collis, 1999, Goldstein, 2000, OECD, 2001a).

Over the last few years, it has become clear that many countries are unable to meet the growing and diversifying demand for higher education. In quantitative terms, it has been stated that in order to keep pace with the growing demand for higher education in certain regions of the world, every week one new university would need to be established. The financial and logistical impossibility of this option became symbolic for what was called "the crisis in access to higher education" and formed the main argument for technology-supported distance education as a cost-effective alternative (Daniel, 1996). Furthermore, it is found that in a range of countries traditional higher education institutions are insufficiently responsive to the demand for more diversified and flexible forms of higher education, in particular in the area of lifelong learning.

The fact that the growing and diversifying demand for higher education is not always being sufficiently met by national higher education systems, creates market opportunities for foreign providers, which are actively explored by providers in mostly Western countries. Consequently, the matching of demand and supply is increasingly taking place across borders, facilitated by the use of ICT, thus leading to a global market for higher education. This trend is sometimes described as transnational education¹, borderless education or (in the case of on-line delivery) as global e-learning and is linked to a growing commercial interest in higher education. The growing global market for higher education goes hand in hand with the emergence of new types of providers, including virtual universities, corporate and for profit providers and is consequently threatening the monopoly of the traditional university.

A recent study carried out by British researchers confirms the growing demand for higher education worldwide as the main driving force for borderless education. At the same time it emphasizes that there is indeed not only a demand for more of the same, but in particular a demand from this new group of learners, working adults (earning and learning), for lifelong, relevant, "just-in-time", and flexible learning opportunities. New providers, such as corporate and for-profit institutions focus on addressing this new demand in particular (CVCP, 2000). Also from US sources it is confirmed that the clientele for distance education consists largely of part-time students in full-time employment. And that the global competition for students focuses especially on those involved in continuing professional education and lifelong learning (Taylor, 2001). As said before, this market is expected to grow substantially. The International Data Corporation expects distance education to grow by 33% each year for the next five years, with an estimated 2.2 million students in 2002 (IDC, 2000). Also the OECD notes that it is especially in this area of lifelong learning that ambitious plans to serve huge global markets are being developed (OECD, 2001a).

The policy context

The (national) policy context in which these developments are taking place will define to a large extent the type of institutional responses that can be expected. The following trends are therefore important to consider. In many countries the expansion of higher education access has been accompanied with a decreasing per capita funding of higher education, resulting in a call for more cost-effective solutions and mixed (public-private) funding arrangements. The great promise of ICT in achieving such cost-effective solutions is often discussed in this context. Deregulation of higher education, enhancement of institutional autonomy, and the introduction of more market mechanism types of steering are used by governments to

¹ Transnational education: higher education activities in which the learners are located in a host country different from the one where the awarding institution is based.

make institutions more responsive to new demands, increasing competition and market opportunities. A stronger emphasis on the individual benefits of higher education and user-pay approaches encourages a greater role of private funding and providers. Especially in the area of lifelong learning, the answer to the “who pays who benefits question” will often turn the costs for learning to the individual and/or his employer, thus giving private funding an important role. These trends are both pushing and enabling institutions to actively search for additional sources of institutional income by enlarging their educational products and markets, by increasing their cooperation with business and industry, etc. Of course, important differences can be noted between countries in the extent to which these trends have (effectively) been implemented. Consequently, higher education incentive systems are still quite different and the rationales and actual possibilities of institutions to engage in new activities and markets may thus be very different too.

In a number of countries (e.g. the US, Australia, the UK, Germany, the Netherlands) governments have identified higher education export as a promising economic activity and an important source of additional income. Consequently, they stimulate their institutions to expand their markets internationally. Their interest in doing this can be illustrated with the following examples. “U.S. higher education and training have a major stake in ensuring that their interests as an industry are properly represented, both for domestic information purposes as well as for international trade negotiations” (NCITE, 2000). “Internationalisation in the UK can be summarized as the mobilisation of the skilled human resources needed to make the UK a more internationally competitive trading nation and to maximise export earnings by selling education services to paying customers” (Elliot, 1998, p. 32). These examples and in particular the vocabulary they employ make clear that other than the usual public-policy based values and arguments for higher education are at stake here. In fact, other parts of government than the departments or ministries of education are leading this agenda. The departments for commerce, trade and industry are the new stakeholders influencing this area. It is recognized that education ministers, and the education community as such, are often not yet very involved in the discussions on these issues. The education ministers of OECD countries have asked the OECD to play a broker role in bringing the education community more “up to speed” on what is happening on this issue (OECD, 2001b).

Globalisation and the role of trade agreements

In exporting higher education products and services and by trying to enter foreign markets, providers often experience serious obstacles. These so-called “barriers to trade in education” may concern national legislation preventing foreign providers to obtain a license to operate in the country, qualification authorities refusing to translate foreign degrees into national equivalents, regulations limiting the movement of educational materials or persons across borders, limitations imposed by telecom, tax, or intellectual property laws, etc. (NCITE, 2000).

With the aim to reduce these barriers and to gain better access to foreign educational markets, a number of countries (the USA, Australia and New Zealand) have put forward new proposals to the World Trade Organization for the next round of negotiations under the General Agreement on Trade in Services (GATS). Educational services have been integrated into the GATS since the Uruguay Round (1987-1994). It is one of the sectors for which WTO members were the least inclined to schedule liberalization commitments. At present, only 38 countries have made commitments for at least one education subsector². Furthermore, these countries have chosen to maintain considerably more limitations on trade in educational services by means of “commercial presence” (mode 3³: e.g. the establishment of campuses) and “presence of natural persons” (mode 4: e.g. a professor providing educational services in another country) than in the areas of “cross-border supply” (mode 1: here only the service crosses the border e.g. e-learning) and “consumption abroad” (mode 2: e.g. students studying abroad) (OECD, 2001b). The fact that the barriers for e-learning (mode 3) seem to be less severe than for other types of

² Sub-sectors are: primary, secondary, higher, adult and other education. Member countries have in general put slightly more limitations on trade in primary and secondary education than on higher and adult education (see <http://www.wto.org>).

³ The different modes of services trade according to the GATS classification.

international trade in education enhances the opportunities in this market. E-learning is expected to have a major impact on the international trade in education.

System-level responses and concerns

The opportunities in the global market are clearly seen by the exporting countries. At the same time, however, many other countries have very strong concerns about the potential threat of further liberalization of the education market to cultural values, language, national traditions, systems and providers. In the eyes of many governments crucial issues related to the further liberalization of education are: the importance of foreign providers meeting certain quality standards and the risk that further competition might compromise the governments' ability to use education to meet certain national policy objectives (OECD, 2001b).

And some are even more concerned than that: "The fear is also that transnational education will be detrimental to smaller nations and languages. It will exacerbate dramatic inequalities among the world's universities, with a dominant role of the world-class universities in Western industrialized countries. Smaller and poorer countries will have little autonomy or competitive potential in the globalized world" (Altbach, 2001, p. 4.). However, the influence of the WTO and trade agreements in a particular country should not be overestimated. Its impact depends foremost on the commitments that the country's own government makes to the various agreements. Moreover, countries have the freedom to choose not only the sectors and modes of supply for which they want to make market access commitments, but also to determine the content of the commitments and the scope of retained restrictions. The size of a country may not be the main issue, depending on how well the country is able to meet the national demand. Small countries may also develop considerable export activities and some even play a major role as foreign investors. But obviously, the developing countries are the most vulnerable, because of general trade inequalities and access-to-market problems, which are also strongly reflected in the higher education area. Nevertheless, there are also examples of countries (e.g. Malaysia) which have deliberately invited, under clear regulations, foreign higher education institutions to move into their country in order to enlarge the higher education provision, which the country itself is not able to develop. China is for the same reason admitting foreign institutions, provided that they cooperate with domestic institutions. Other countries are facing non-invited providers and are trying to respond to that with adequate regulation, e.g. South Africa and Israel (McBurnie & Ziguras, 2001).

In Europe the emergence of transnational education (TNE) and especially e-learning provided by foreign institutions has also led to some concerns. Recent studies (Dos Santos, 2000, Adam, 2001) show that the main importers of TNE in Europe are Greece, Italy and Spain. The main exporters to these countries are the UK and the US. The reports are quite honest in stating that TNE can widen access to quality higher education and that its growth is often a sign that the national systems are not responding to the needs of the students. This can refer to quantitative needs; the national higher education structure cannot cater for the national demand. Or in terms of diversity; the need for more flexible, student centered, or competency based learning which is not met by the national system. It is also acknowledged, however, that regulation, quality assurance and recognition are the main problems related to this type of education. At a more general level, TNE, or more specifically non-European providers who are entering the European market, are seen as a threat to European higher education, which calls for the enhancement of the international competitiveness of European higher education itself. This notion became one of the central aims of the Bologna Declaration, which started a process of European-wide reforms in the sector (Van der Wende, 2001a).

Traditional higher education institutions are most aware of the fact that TNE and cross-border trade in educational services may endanger their position and market monopoly. They are therefore opposed to the further liberalization of the higher education market and the role of the WTO in this process. In September 2001, the Presidents of the EUA (European University Association), AUCC (Association of Universities and Colleges of Canada), ACE (American Council on Education) and CHEA (Council for Higher Education Accreditation - USA) signed a joint declaration on higher education and the WTO's General Agreement on Trade in Services. The text of this declaration makes it clear that the signatories on both sides of the Atlantic oppose the inclusion of higher education services in the GATS negotiations

and agreements. The joint declaration asks all actors in the inter-governmental GATS negotiations not to make commitments concerning services in higher education, or in related sectors of the education system. The document also draws attention to the fact that, in many countries, there has not been any consultation so far between trade officials and representatives of higher education (EUA, 2001).

Global e-learning: the main controversies

The various concerns with respect to TNE and in particular global e-learning are discussed in a range of recent articles and meetings and reveal a number of controversies which can be summarized as follows.

Access and equity

The promise that ICT provides opportunities for better education to more people (including those in developing countries) in a more cost-effective way is opposed by the warnings concerning the increase of the digital divide (Gladieux & Swail, 1999). Internet access is extremely unevenly spread over countries and regions (US over 50% of households against only 3% in the world at large). And even as it is expected to reach 75% in all advanced countries in five years, only then the real problem arises, because educational ability and cultural capital are extremely unequally distributed and this inequality is amplified by the Internet (Castells, 2001).

Higher education: a trade commodity or a public good

Whereas some see e-learning and "webucation" as the next great growth opportunity on the market (Drucker, 2000), others consider higher education primarily as a public good and responsibility. Moreover, many questions are raised with respect to how commercial courseware can be developed and exploited in ways that are consistent with faculty ownership of the curriculum (intellectual property) and how universities could get into the mass market for courseware within the constraints of their own values and structures (Trow, 1997).

Unbundling the functions of the university

Observations are made that three basic types of universities are emerging: "brick universities", "click universities", and "brick and click" universities, which are believed to become the most competitive and attractive institutions. Related to this is the fear that the traditional functions of the university - teaching, research, and service - could become unbundled, since teaching is the only function that is usually thought of as profitable (Levine, 2000).

Quality and quality assurance

It seems inevitable that international virtual provision will be of mixed quality (Twigg, 2001). Consequently, the question is asked whether students should be protected from some potentially poor quality overseas virtual provision, or whether reliance should be placed on the market to solve the issue (CVCP, 2000). In addition, it is often emphasised that governments should take their responsibility in quality assurance, accreditation and in consumer information and consumer protection, especially *vis a vis* programmes that are delivered from non-accredited institutions from abroad (Collis & van der Wende, 1999). Heterick and Twigg (1997) state that although market forces should be stimulated by deregulation of higher education, but at the same time, accountability to the public and to student consumers needs to be established. Education is too important to exist without controls, without licensing, or without credentials.

Cultural and pedagogical issues

While geographical barriers to access are alleviated by new information and communication technologies, other barriers to access may be created. International online education should not be restricted to a range of narrowly commercially motivated courses that are targeted to a global elite. And in order to be able to be attractive to students anywhere in the world, there is a need to develop pedagogy that is able to transcend geographical dispersal and cultural and linguistic barriers (Ziguras, 1999).

The role of US higher education in the global higher education market

Information and data on the activities of countries in the area of international trade in educational services

are in general scarce and extremely difficult to evaluate. In particular data on virtual types of cross-border supply (global e-learning) are hard to obtain.

Most reliable data concern actually mode 2: "consumption abroad", i.e. the flows of international students. According to OECD statistics, a total of 1.42 million students studied abroad in higher education institutions in 1999. The US is leading in this market with a share of 31%⁴. The other major players are: the United Kingdom (16%), Germany (12%), France (9%)⁵ and Australia (8%).

Based on information on education-related activities in the OECD data base on international trade in services statistics, the US is indeed by far the biggest exporter of education services, followed by the UK, Australia, and Canada. These four countries have a clear "trade surplus" in education services. However, when compared with the "revealed comparative advantage" in this area of trade (defined as exports minus imports as a proportion of total services trade) Australia appears to be the most competitive exporter in this market followed by New Zealand, the United Kingdom and the United States (in that order) (OECD, 2001b).

The total volume of the global education market is currently estimated at 30 billion US\$ (9-10 billion US\$ for US exports), but is almost exclusively calculated on the basis of mode 2 activities (international student flows). Moreover this figure is only based on enrollments in higher education and does not include other levels of education or corporate training.

Although the number of international students (mode 2) is often used as an indicator to estimate the overall level of trade in educational services, it is recognized that this estimate is becoming less and less accurate, as other forms of trade in educational services are growing rapidly. Mode 1 "cross-border supply" and in particular e-learning are likely growing at a faster rate than the number of students studying abroad.

By lack of data on the exact role (and growth) of e-learning in the cross-border delivery and global trade of education, it seems useful to look at how the domestic provisions of e-learning compare across countries. But also here we will have to accept severe problems in terms of a lack of comprehensive and comparable data.

E-learning provisions in the US

In other parts of the world, the US is often perceived as a dominant player in the new global e-learning market. The above presented data on the US position in the market make this understandable, but also demonstrate a lack of precision with respect to particular niches, strengths and weaknesses that a player may have in certain markets. Furthermore they show that in terms of relative performance more indicators have to be taken into account, such as the balance between import and export, which may be influenced by the extent to which domestic provision meets domestic demand.

In terms of comparative advantages and market positioning it is important to analyse the strengths and weaknesses and the niche markets held by major competitors. It is therefore not surprising that both Australia and the UK have carried out in-depth studies on the role and position of the US in the global market. A strong focus was placed on the new type of providers (e.g. virtual, corporate and for-profit providers) and their possible impact on the position of traditional universities in other countries. The Australian research team found that most corporate universities in the US concentrate on limited (and non-degree) in-house training for major companies rather than competing with the offerings of traditional universities. That there were in fact few robust examples of fully on-line universities (exceptions are for instance University of Phoenix on-line, DeVry University, and Jones Virtual University). And that the main

⁴ Or some 440,000 foreign students per year. According to more precise statistics of the Institute for International Education, the number for 2000 was 514,723 (IIE, 2001).

⁵ A large proportion of these students come from France's former colonies in north and west Africa.

⁶ Only two-third of these students can be considered really as foreign students. All others are second or third generation immigrants, born in Germany.

threat to conventional universities is posed by the for-profits which are meeting the needs of a niche market of adult students wanting convenient times and places for gaining degrees in vocational programs in minimal time (Cunningham *et al*, 2000).

In the following section, these conclusions will be compared with some recent quantitative data on the domestic US provision in e-learning. It should first of all be noted that the US holds a very strong position in terms of the general use of ICT in higher education. As stated in a recent OECD report (2000), the US is clearly leading the way on most measures of information technology capacity and take up. The Campus Computing Project reports yearly on the rise of ICT use in instruction. Last year, 60% of the institutions make systemic use of email, 42% of Internet resources and 31% of WWW pages as an element of instruction. The proportion of students who own computers, and who could thus benefit from e-learning provisions at home, is rising, up to 71.5 percent of all students in 2001, compared to 58.6 percent in 2000 (Green, 2001). The development of e-learning in higher education is further facilitated by a quite important number of institutions engaged in distance learning. In 1998, 58 percent of all two and four year colleges offered distance education courses and 84% expect to do so by 2002⁷. 60 percent of the institutions offering distance education are using the Internet as the primary mode of instructional delivery⁸. State governments play an active role in stimulating the further development of e-learning in the various states. 62 percent of them established a virtual university of virtual community college system for the delivery of e-learning⁹. Furthermore, they establish virtual libraries, invest in the upgrading of skills of educators, promote access to e-learning, address quality assurance issues, etc. (NGA, 2000).

If we look more closely into the provision of on-line courses, however, we can observe some patterns that seem to confirm the findings of the Australian study quoted above. Information from one of the more searchable data bases¹⁰ shows the following. First, indeed only a small proportion of the e-learning provided seems to be actually leading to a degree. 65 percent of e-learning offerings concern on-line college courses; generally credit-bearing courses, offered by accredited institutions at mostly undergraduate level. 32 percent concern on-line training courses; mandated continuing professional educational and adult education, mostly non-credit bearing and mostly from non-accredited institutions. And only 3% concerns on-line degree courses. Second, these degree courses mainly concentrate on undergraduate studies in business and management (53%). 42 percent of the degree courses concern the graduate level, with again a majority in the field of business and management, followed by technology and health to a lesser extent. Unfortunately, these data are hard to compare with data from other sources. In the context of the Futures Project¹¹, however, it was also found that most institutions offer courses only (56.3%) and that only a minority offers bachelor's (13%), master's (18.5%) or doctorate degrees (3.4%) on-line. Furthermore, this survey showed that only 7.8 percent of these institutions are purely virtual.

This situation may be explained by cost considerations. The investment in an entire degree program is obviously higher than for one course. But another important reason seems to be the fact that e-learning, as a growing component of distance learning is often positioned in the organizational periphery of the institution (e.g. extension centers, consortia, joint ventures, spin-offs or other). Decision making about the curriculum and academic quality, however, takes place in the core of the institution and is related to (especially in research universities) a high level of ownership of the curricula by faculty. It is therefore often very difficult to get distance learning courses or e-learning courses that lead to a degree from the institution (these issues will be further discussed below).

The US is also significantly ahead of the rest of the world in terms of market size and valuation. In an often-quoted report from Merrill Lynch (Moe, *et al*, 2000) it is stated that the US education market was

⁷ Source: US Department of Education.

⁸ Source: National Center for Educational Statistics.

⁹ See also <http://www.itcnetwork.org/virtualalliancelist.htm>, for an overview of state-wide virtual networks.

¹⁰ Mindedge.com (formerly known as New Promise) contains a large database of 7,421 online courses offered by US institutions and serves as a portal for offering such courses. This data base includes offerings from both accredited HE institutions (31%), as well as from private training providers (69%).

¹¹ See: http://www.futuresproject.org/publications/virtual_database.html. This data base includes data on 1180 mostly accredited (90%), mostly 2-4 year (73%) institutions.

worth \$735 billion in 2000. The on-line component of it is still relatively small: \$9.4 billion (1.3%), but is expected to grow to \$53.3 billion in 2003. US college students spend \$105 billion annually with \$1.5 billion being on-line (1.4%), which is predicted to grow to \$7 billion in 2003. On-line corporate learning is expected to grow from \$1.1 billion in 1999 to \$11.4 billion in 2003. Other studies were somewhat more moderate in their predictions¹². But although the actual market share of on-line learning was still minimal, in general the optimism on market growth was enormous. However, this was before the IT sector started to slow down in 2000 and even collapsed in certain cases over the last 18 months.

Consequently, at the present time (fall 2001), it is increasingly recognized that these forecasts will need to be adjusted to new economic realities. Like in the dot-com sector in general, and after a period with immense flows of venture capital being available for the “education dot-coms”, now venture capitalists start asking more and tougher questions about profit potential. The realization that there were probably many more companies in the e-learning market than the education industry needs, led to a “shake-out” and only the strongest players (i.e. profitable and brand-named) are likely to survive¹³. This “reality check” has brought the e-learning market into focus. It continues to grow, but much of the momentum has slowed. Many e-learning enterprises have gone bankrupt, realizing the enormous costs of launching courses on-line and especially of maintaining high quality in doing so. Surviving companies and institutions focus increasingly on niche markets and seek more collaboration. The awareness arises that the Internet has achieved incredible growth, but mostly in areas where people already have access to good education. Consequently, global strategies and reaching out to areas such as India, China and Brazil may come more into the picture¹⁴. A survey of the Association to Advance Collegiate Business School (AACSB) showed that even in niche markets progress is slower than expected. Of the total of 116,494 MBA students in the US, just 2.5 percent were taking their program on-line. Universities and consortia, for-profit or not, active in this market need to reconsider their business models. Some already had to lay-off employees and others withdrew from the market. Still, as the demand for business education in the US and worldwide far exceeds the supply available from traditional research-based universities, experts tend to hold their belief in the opportunities of this market¹⁵. A further economic slowdown emerging in the wake of the September 11th attacks on the US may further affect the sector. At the same time speculations are made on how these events may also raise the corporate and professional demand for cost-effective e-learning solutions¹⁶.

E-learning provisions compared

To get an impression of the position of the US in the global market, we need to compare the US domestic provision with that of other countries. An available data source for this is the International Distance Learning Course Finder¹⁷. But also these data show considerable deficiencies. First, they do not necessarily include all e-learning providers in a country. Second, they only indicate the supply and give, unfortunately, no information on how supply relates to real or potential demand and the extent to which these courses are actually taken, and by whom. They thus do not give any information on the above presented problem that there may sometimes be too many providers in a certain market. Nor do they indicate where the students are located, or the degree to which it would concern transnational education. Third, the data report on distance learning generally, without making perfectly clear to what extent the courses and programs are actually delivered on-line and can thus be considered as e-learning. Fourth, only the number of providers can be searched by country (and the numbers of courses) and the totals per country may include “mega providers” (e.g. open universities offering great numbers of courses and enrolling thousands of students) as well as very small providers. Consequently, these data only give a very rough indication of the e-learning provisions in the various countries.

¹² E.g. the National Governors Association expected the total e-learning market to grow to US\$ 40.2 billion in 2005.

¹³ “Bubble Bursts for Education Dot-Coms”. Chronicle of Higher Education, June 30, 2000.

¹⁴ “Distance education yet to hit home”. Wired News, September 5, 2001.

¹⁵ “Expectations Evaporate for Online MBA programs”. Chronicle of Higher Education, October 5, 2001

¹⁶ “Checking the Industry’s Pulse: How have the attacks affected e-learning?” E-learning Magazine. October 1, 2001.

¹⁷ This is one of the largest online directories of e-learning courses from 130 countries. It holds information on over 55,000 distance learning courses and programs offered by universities, colleges and companies, including high school, and further education.

The comparison will be limited to the US and its above mentioned main competitors in terms of international trade in educational services (figure 1) and between the US and Europe (figure 2). In order to estimate relative performance, the domestic provision will be related to potential domestic demand, i.e. the number of potential consumers, which will be calculated both in terms of the size of the country's higher education student population¹⁸ and its total population (tables 1 and 2).

Figure 1: Comparison of distance-learning providers in the US and its main competitors in international trade in educational services

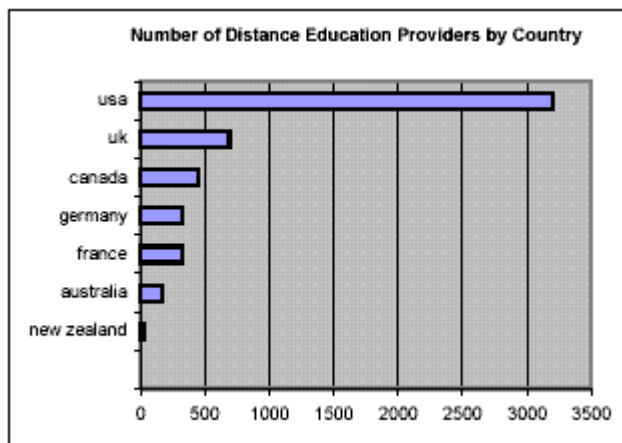


Figure 2: Comparison of distance-learning providers in the US and in Europe

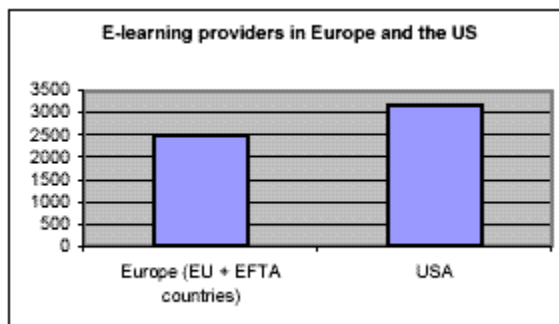


Table 1: Relative provision of distance learning in the US and its main competitors in international trade in educational services

	Number of distance learning providers	Number of distance learning providers per 10,000 studs*	Number of distance learning providers per 100,000 inhabitants**
Australia	167	1.6	0.87
Canada	450	2.5	1.44
France	324	1.6	0.55
Germany	324	1.5	0.39
New Zealand	25	1.5	0.59
United Kingdom	688	3.8	1.13
United States	3193	2.2	1.06

* Data on size of student population: UNESCO Statistical Yearbook, 1999. Paris: UNESCO

** Data on size of countries' population: US Dep. Of Commerce, Economics & Statistics Administration, 2000

¹⁸ Countries may have include different categories of students in their overall counting of the higher education sector.

Table 2: Relative provision of distance learning in the US and Europe

	Number of distance learning providers	Number of distance learning providers per 10,000 studs*	Number of distance learning providers per 100,000 inhabitants**
Europe (EU+EFTA)	2483	2.0	0.63
United States	3193	2.2	1.06

* Data on size of student population: UNESCO Statistical Yearbook, 1999. Paris: UNESCO

** Data on size of countries' population: US Dep. Of Commerce, Economics & Statistics Administration, 2000

From the above data it appears that the US is certainly the world's largest provider of e-learning (also among countries not listed in this overview none has a larger numbers of providers) and has also by and large more providers than the countries which are its main competitors. In relative terms, however, it seems that the number of e-learning providers in the United Kingdom and Canada might be more important than those in the US.

Compared with Europe, the US has more e-learning providers in both absolute and relative terms, although the difference seems not to be very important in terms of the number of e-learning providers compared to the size of the higher education student population. However, the figures between countries within the European region differ to a great extent, with Italy and Spain being on the low end (with respectively 0.34 and 0.97 providers per ten thousand students). This may explain why these countries are among the main importers of transnational education in Europe (see above). These countries represent in principle interesting markets for higher education exporters, such as the US. But clearly, the US will find (and is finding) itself in competition with other exporting countries in these markets (in Europe notably the UK). Even more important markets, however, exist in the Asian region, where very large countries like India, China and Indonesia (with all extremely low numbers of providers; between 0.05 and 0.2 per 10,000 students and between 0.004 and 0.006 per 100,000 inhabitants) represent the most important markets for global e-learning. But also in this region, competition is to be expected from other exporting countries, notably Australia, New Zealand and also the UK.

Overall, the comparisons of e-learning provisions seem to indicate that the US holds a strong position in the market indeed, although certain of its main competitors seem to have a relatively larger domestic supply. Success or relative performance of the US in international markets, however, will not only depend on the volume of its e-learning provision, but also very much on the type of global strategies that its higher education institutions and other e-learning providers apply in approaching these markets.

Comparison of global strategies for e-learning

As stated above, national (or state level) policy contexts may provide higher education institutions with quite different incentives to actually search access to global markets. Systems that allow institutions to raise differential or full cost recovering fees for international students and which award them sufficient institutional autonomy to define independently specific international courses and programs provide more incentives than those that limit institutions in this regard (or which do not allow them to charge fees at all). Moreover, certain countries actively facilitate the export of higher education through institutional subsidies for international marketing, national-level promotion campaigns and overseas infrastructure such as education and recruitment offices, etc. Furthermore, the development in domestic demand may also influence institutions to search for global markets: growing domestic demand will give them less reasons to do so than a diminishing domestic demand. The investment costs will also influence the extent to which institutions are inclined to go global. This gives countries that can export courses and programs in their native language an advantage as compared to those that will have to invest in developing educational programs in a foreign language. Finally, institutions with a well-developed international infrastructure will have an advantage over those that have so far not invested in this type of activities.

Over the last decade, the US, the UK and Australia have been most active in searching access to global markets. Fee regulations, level of institutional autonomy and active governmental support motivated

many of their institutions to gain extra institutional income from abroad. More recently, more countries (e.g. Canada, New Zealand, the Netherlands, Germany and France) have started to develop such strategies too. Clearly, institutions in the last three countries mentioned have to face much higher investment costs in developing international programs if they are to be taught in English.

Strategies for global operations vary considerably between countries. The UK and Australia have especially developed important off-shore operations. One third of Australia's (approximately 100,000) international students study for instance with an Australian institution in their own country. In 1999, the Australian institutions offered in total 750 off-shore or transnational programs and this number is expected to grow further over the next years (Davis *et al*, 2000). This type of education may take place through branch campuses, franchised programs, distance learning programs supported by local providers, etc. The strongest example of a global strategy based on the establishment of campuses overseas is Monash University, with campuses in Malaysia and South Africa and also operations in different locations in Europe. This concept of "moving education not learners" is of growing importance in the field of transnational education, as the costs for students are much lower as compared to study abroad. The concept is also driving the development of global e-learning, which may offer students even more convenient and cost-effective options for studying towards a foreign degree while staying at home. And despite the fact that at present only a very small proportion of the Australian transnational programs are delivered fully on-line, this model is considered to have an important potential for the further growth of the industry. Consequently, the strategic link between ICT or e-learning and internationalisation or global strategies is worked out by institutions aiming to be "global enterprises". In this context, many institutions choose to establish or join consortia with national and in particular international partners. In this way investment costs can be shared and market reach and visibility can be increased. Universitas 21, a consortium initiated and led by the University of Melbourne, is one of the most well known examples of this type of consortia.

In Europe (especially continental Europe) strategies for ICT or e-learning also become increasingly linked to internationalisation strategies. However, internationalisation is in this region more based on cooperative than on competitive approaches (Van der Wende, 2001b). Consequently, here also the use of ICT in international strategies is less market-driven. ICT is here rather used to enhance the opportunities for international learning experiences for domestic students. On average the percentage of students that can actually study abroad does not exceed 10 percent. Building on a tradition in international education and a strong focus on foreign language acquisition and intercultural skills, ICT is seen as an important means to enlarge the number of students that can experience an international learning environment (Van der Wende, forthcoming). Numerous networks, mainly at disciplinary level, have been established to create such international collaborative web-based learning environments and to jointly develop on-line courses and programmes that can be delivered internationally (e.g. Open to Europe). Also at the institutional level, networks and consortia are established to allow teachers and students to collaborate and learn on-line (e.g. EuroPace2000, UNITE, etc.). The collaborative approach is strongly encouraged and facilitated by the European Commission, which has allocated specific grant schemes for the development of e-learning or "virtual mobility", always on the condition that partners from at least three different European countries collaborate.

The US institutions were in fact among the first to develop campuses overseas. Some were already established in the 1950s (e.g. Stanford University's Overseas Studies Programme). However, these campuses generally served to provide the institution's own students with a study "abroad" experience. Consequently, the US higher education institutions did not so much enter overseas markets in this way. There are of course exceptions to this pattern, for instance Webster University, which has for many years campuses in different countries, and more recently MIT's venture in Singapore. In terms of internationalisation, however, the US institutions have mainly relied on the (increasing) flows of international students coming to the US to study. In terms of global e-learning strategies, this lack of physical presence overseas may be a disadvantage in terms of lower visibility in particular markets and less precise knowledge of them. On the other hand, US institutions benefit from the general attractiveness of US higher education abroad and the world-wide reputation of its brand-name institutions.

US institutions operate in principle in a growing domestic market; nationwide the institutions are expected to enroll more than two million new full-time students by 2010 (Tidal Wave II (CPEC, 2000)). This may make them less eager to engage in global activities than institutions in countries with a decreasing domestic market. Especially the leading research universities, which can select their students from very large pools of applicants, do not really need to recruit overseas (although the situation may be different in certain disciplines with declining national interest). Combined with the fact that international students have an intrinsic interest in studying in the US (see above), this seems to have led to less elaborate and somewhat marginal internationalisation strategies for education in most US institutions.

Over the last few years, many US institutions engaged in e-learning initiatives. The promise of the market and the opportunity to generate additional institutional income was in many cases the driving force for them to do so. For-profit entities were created in many cases in order to be able to attract investment capital, to give employees a share in the company's economic value and to operate outside the rules and regulations that govern the institution (Goldstein, 2000). Other models are building on the already existing, and in many cases fairly well developed, distance learning programs and/or extension branches of the institutions and thus remain in the not-for-profit or non-profit domain. Also in the US, many institutions joined consortia in order to enhance their position in the market. It seems that in particular the e-learning initiatives and ventures that are targeting new markets (e.g. lifelong learning, corporate training, etc.) operate in the periphery of the institutions. As a strategy for managing change, this is a comprehensible and often sensible approach to responding to new demands from outside the institution. See for instance Levine (1980) on peripheral change and Clark (1998) on extending the institutional periphery in entrepreneurial universities. However (and as stated above), the disadvantage of these models is that it is often very difficult to get courses and programs provided by these peripheral entities that lead to a degree from the institution. These problems have only been overcome in some cases, e.g. in the George Washington University, where a new academic entity was created with authority to award degrees to continuing education courses and which can rapidly decide on new provisions according to market demand. However, the authority is limited to degrees of professional studies only (Whitaker, 2001). In terms of degree programs, the above presented quantitative data also suggested that it are indeed the professional fields which are most straightforward in offering their degree programs on-line (mostly in business education).

The extent to which the US e-learning strategies have an international or global outlook and reach is not easy to assess. In many documents, the word "global" is used, and certainly all providers see the potential of the global market. Unfortunately, however, numbers of international students enrolled in elearning courses are hardly available from most of the providers. It seems that the US research university international market orientation is primarily via their continuing education arms, professional schools or the new spin-offs geared towards non-traditional students, although experimentation is taking place in other parts of the institutions as well (e.g., MIT-Singapore initiative (Harley, forthcoming). Other initiatives, labeled as "global" (e.g. the Stanford Wallenberg Global Learning Network), are in fact more focused on cooperation in research and development in the area of e-learning than on the actual global delivery of on-line courses. Case studies on specific e-learning ventures¹⁹ also demonstrate that global strategies are certainly not a systematic feature, although some particular niche markets may be targeted overseas by some of the initiatives, e.g. US military and navy personnel overseas, international MBA's, and corporate training for multinational or overseas companies. Examples of such initiatives include: the University of Phoenix On-line (focusing exclusively on adult learners, with also campuses in various foreign countries). Universitas 21 (but not a US initiative, although it has some US institutions as its members). New York University On-line (mostly corporate training overseas), NextEd (an important player in the Asian market, but also not a US initiative, although some US institutions partner with this Hong Kong based venture). MITOpenCourseWare (although this initiative only concerns the posting of online course materials on-line and not the delivery of full courses). Various business schools have ventured in

¹⁹ Case studies carried out by the Centre for Studies in Higher Education in the context of the project on Higher Education in the Digital Age, including: Fathcom, The George Washington University/Prometheus, Global Education Network, MIT OpenCourseWare, NextEd, NYUonline, OnlineLearningNet, UmassOnline, Unext.com/Cardean University, University 21, and Western Governor's University. See: http://ishi.lib.berkeley.edu/cshe/projects/university/ebusiness/case_studies.html.

on-line MBA's, including some initiatives that aim the international market (e.g. Duke University's crosscontinental MBA). Others use e-learning to serve new markets for professional studies and continuing education in China (e.g. The University of Michigan Ann Arbor, the California State University, University of San Francisco). And various consortia have been set up to develop e-learning offerings for alumni (e.g. Stanford, Oxford, Princeton and Yale Universities).

One important particular niche-market should not be forgotten. It concerns the training of IT skills and knowledge by various major US-based IT companies (e.g. Microsoft, Sun, Cisco Systems, etc.). The numbers of students they enroll worldwide through standardized computer-based training is estimated at minimum 2 million per year. The professional certificates offered by these companies do not only guarantee recognition by employers, but also in many cases across companies and across national borders. This new type of postsecondary provider has been described as boundary-breaking and bordercrossing, establishing a "parallel universe" to institutional and governmental arrangements for this type of training, which may well represent a more important challenge to traditional providers than virtual and online universities (Adelman 2000).

As said before, unfortunately, for most initiatives few hard data are available so far on the successes of these ventures in the global market. Recent reports on the US market (see above) emphasize that the reality of profit potential for many of these ventures has been rather hard to define and that even in niche markets (e.g. on-line MBA's) the actual take up of e-learning courses is lower than expected. It is impossible to generalize this situation to the global context. Since it may on the one hand mean that in many other countries (with less sophisticated IT infrastructure than the US) even more obstacles would have to be overcome in order to be successful. On the other hand it can be argued that e-learning provides more added value in countries and regions where access to good education is extremely limited and that thus global strategies focusing on countries such as India and China may become more into the picture. In the latter scenario, however, US providers not yet present in these markets would have to make considerable investments. Moreover, they may expect to find serious competition from providers from other countries, not in the least place from within the region itself, which can often produce elearning products at considerable lower costs (Hillsberg, 2001).

Conclusions

From the above presented analysis it can be concluded that the role of US higher education in the global e-learning market seems to be very strong. The large number of US e-learning providers, a generally strong experience in distance learning and continuing education, the general attractiveness of US higher education abroad and the world-wide reputation of its brand-name institutions, give US providers a potentially strong position. At the same time, a growing national market may motivate certain institutions to focus primarily on domestic markets. The new round of GATS negotiations may, however, also introduce foreign competition in this domestic market. It has become clear that US providers operate mainly in niche markets overseas (corporate training and lifelong learning). Full degree programs only represent a small proportion of the on-line offerings and are mainly concentrated in business studies and IT training. For-profit providers or spin-offs of traditional universities are most active globally. For most brand-name (research) universities, global e-learning activities occur only in the institutional periphery. Linking e-learning and (mostly marginal) internationalization policies is for many US institutions not (yet) an obvious strategic choice. US institutions may face competition in foreign markets from providers with a stronger and long-lasting presence in certain markets or from providers which operate with lower production and operation costs. Other challenges are related to the fact that little is known so far on how effective and high quality e-learning can be achieved across cultural and linguistic borders. Like in many other countries, research would need to be initiated in this area. And finally, in terms of global competitiveness more generally, US institutions could learn from their European counterparts on how elearning can be used to provide domestic students with international learning opportunities. Collaborative forms of study across cultural and linguistic borders are indispensable in order to prepare students for work and life in a global world.

These conclusions coincide to a large extent with the findings of the Australian study, which concluded that the main threat to conventional universities in other countries is posed by the US for-profits which are

meeting the needs of a niche market of adult students wanting convenient times and places for gaining degrees in vocational programs (see above).

From a European point of view, this does not mean, however, that this threat should not be taken seriously. The market for lifelong learning is also growing in this region, but most higher education institutions have not yet responded effectively to the demand for flexible and competency-based learning for adult students. Positioning themselves in this new market should be a strategic priority, the more because in many European countries the initial student enrollment is decreasing. Insufficient response directly creates market opportunities for foreign providers. Foreign competition on this market cannot be neglected and should perhaps even encourage the institutions to look for international market opportunities too. Various policy measures are put in place to support the development of e-learning and lifelong learning. At the level of the EU and in many countries both topics are policy priorities and the Bologna Process will enable the introduction of more flexible degree structures. However, institutions in most continental European countries (with national open universities) have considerably less experience in distance learning and continuing education to build on in this area than their US, UK and Australian competitors (an exception here is for instance Finland). It seems that European countries differ in the extent to which they will be able to face global competition. The Scandinavian countries, the UK, the Netherlands and Germany (to some extent) may have less problems, as they generally have a quite sophisticated IT infrastructure, a high level of Internet access and use, virtual universities initiatives are underway, and are also very internationally oriented. The southern and eastern part of Europe, however, may be more vulnerable to foreign competition.

Future scenarios

Among others things, this paper has shown how difficult it is to assess and predict future developments in e-learning, especially at a global level. The diversity of the higher education sector and its markets, the rapidly changing number and type of providers and students populations and swift technological change complicate such predictions. The most that can be done is to develop some scenarios and to test them consequently against the actual strategies of a most widely and diverse sample of institutions. Below, four scenarios which have been developed for this purpose by the University of Twente are presented.

Table 3: Four profiles for flexible learning in 2005+ (B. Collis and J. Moonen, 2001).

	<i>Where local and face-to-face transactions are highly valued</i>	<i>Where global and network-mediated transactions are the norm</i>
<i>In which the institution offers a programme and ensures its quality</i>	<p>Profile A Quality control of a cohesive curriculum, primarily experienced in the local setting Back to the basics</p>	<p>Profile B Quality control of a cohesive local curriculum, available globally The Global Campus</p>
<i>In which the learner chooses what he wants and thus takes responsibility for quality assurance</i>	<p>Profile C Individualisation in the local institution Stretching the mold</p>	<p>Profile D Individualisation and globalisation The New Economy</p>

Two dimensions are used which seem critical for analysing (and predicting) the different strategic pathways that higher education institutions may choose with respect to the future use of ICT in their international strategies. These dimensions are: *Location* (local vs global) and *Quality control* (control with the individual vs an expert/institution). The dimension "Location" relates to the term--place and form of

transactions which is commonly used in discussions on the new economy (Kelly, 1998). Similarly, the dimension "Quality control" relates to the idea of individualisation of consumer choice in new-economy discussions.

In the following sections the four scenarios are elaborated in relation to their implications with respect to internationalization and global e-learning strategies.

Profile A. Back to Basics

In this scenario, students, including international students, will prefer to come to a campus-based institution. The international learning setting takes place through face-to-face contacts with their fellow students from different countries and through direct interaction with instructors. *Virtual this and that* are seen as just a hype; real learning takes place in a fine campus setting with its library, computer labs, instructors with office hours, and other students to interact with. The basic assumption is that experts in the institution are in a better position than the student to indicate what courses are useful and in which order they should be taken. Technology appears here in sensible ways; using word processors, email and WWW browsers, getting course information via WWW environments. WWW sites are also good for consultation of external and international course resources and to make communication within the institution and with foreign students and institutions easier. But the basics are still what matters: a well planned curriculum and regular face-to-face contacts.

Profile B. The Global Campus

Students want to study in a well-planned program, probably from a foreign institution, but they want to stay in their own locations and continue their own lives at the same time as they are studying. They are able to participate on-line in the program of a foreign university, even if they don't physically ever come to that institution (or only come once or a few times). Technology here becomes very important. First of all, the student will need to use technology to find out about the programme of the university. Second, the student needs to use the technology to register for the programme. And third and foremost, the student will need technology for stable access to all the course materials, assignments, and for communication and interaction with fellow students and instructors.

Profile C. Stretching the Mold

The student has no particular interest in being involved in a program or course abroad or at a distance, but would appreciate more flexibility in his local study setting. He or she might like to substitute some courses from the home institution with courses from a foreign institution. This choice may be related to the fact that the foreign course takes another academic, pedagogical, cultural or linguistical approach, or to student's desire to interact with the international environment. The student may also think that the foreign course is more efficient, relevant, or of higher quality. For all of these options technology is an important if not essential condition. The institution responds to the learner by increasing flexibility in a number of ways, not only relating to place and time, but also to content, assignments, prerequisites, resources, and other aspects of course participation. It may cooperate with foreign partner institutions in order to widen the choice for international on-line options within a common course management and credit transfer and recognition system.

Profile D. The New Economy

The student wishes to make his or her own decisions about what, when, how, where, and with whom he or she learns. The student will often be a working professional, and has a good idea of the types of courses or learning experiences that would be useful to his work setting. The employer is stimulating and supporting lifelong learning efforts. The student approaches an intermediary or advisory person (via the WWW), who provides assistance in defining level and learning needs. The student will search the WWW himself (or use a portal) to locate appropriate learning options. These may come from different institutions around the world, according to their particular profile and expertise. The student will choose on the basis of the relevance, quality, efficiency, and flexibility of the various options. The student can stay at home and continue professional and family responsibilities. The student is a life-long learner looking for just-intime internationally competitive provision. In principle the student does not study for a degree, but he or she will require certification of acquired competencies and/or credit accumulation for professional recognition purposes.

The use of future scenarios: a basis for further research

These scenarios have been put forward to a number of experts from around the world, who were invited to comment on these scenarios in a global context and on their impact on the process of internationalization. Their combined comments will be published in a special issue of the *Journal for Studies in International Education* (Collis & Van der Wende, forthcoming).

Secondly, the scenarios are currently tested as part of a comprehensive international comparative study on the use of ICT in higher education. This research project is carried out by the Centre for Higher Education Policies Studies (CHEPS) and the Faculty of Educational Science and Technology of the University of Twente in the Netherlands. The study includes the following countries: the US, UK, Canada, Australia, Germany, Finland, Sweden, Norway and the Netherlands. The aims of this study are to:

- Gain a further insight in and understanding of the institutional, policy-based responses and initiatives with respect to the use of ICT in higher education.
- Further develop and test four scenarios on strategic choices of HE institutions with respect to the use of ICT in their education functions.
- Predict the different strategic pathways that higher education institutions may choose with respect to the use of ICT in higher education and the critical conditions and implications at various levels which are related to them.

The project is co-funded by SURF (the support agency for technology in higher education in the Netherlands), the Bertelsmann Foundation, Germany and the Norwegian Ministry of Education.

More information can be found on the project's website: <http://www.utwente.nl/modelsofchange>.

Results of the study will be made available in 2002 on the CHEPS website: <http://www.utwente.nl/cheps>.

References

- Adam, S. (2001). *Transnational Education Project. Report and Recommendations*. Confederation of European Union Rectors' Conferences.
- Adelman, C. (2000). *A Parallel Universe, Expanded: Certification in the Information Technology Guild*. <http://www.aahe.org/change/paralleluniverse.htm>
- Altbach, Ph. (2001) Higher Education and the WTO: Globalization Run Amok. In: *International Higher Education*, number 23, pp. 2-4.
- California Postsecondary Education Commission (2000). *Providing for Progress: California Higher Education Enrollment Demand and Resources into the 21st Century Report 00-1*.
- Castells, M. (2001). Information Technology and Global Development. In: J. Muller, N. Cloete & S. Dabat (eds.) *Challenges of Globalisation. South African Debates with Manuel Castells*. Cape Town: Maskew Miller Longman.
- CHEPS (2000). *Higher Education and the Stakeholder Society*. Research Programme 2001-2005. <http://www.utwente.nl/cheps>.
- Clark, B. R. (1998). *Creating Entrepreneurial Universities. Organizational Pathways of Transformation*. IAU Press. Issue in Higher Education. IAU Press / Pergamon.
- Collis, B. and J. Moonen (2001). *Flexible learning in a digital world. Experiences and expectations*. London: Kogan Page.

Collis, B & M.C. van der Wende (Eds.) (1999). *The Use of Information and Communication Technology in Higher Education. An International Orientation on Trends and Issues*. Enschede: University of Twente /CHEPS.

Collis B. & M.C. van der Wende (Eds.) ICT and the Internationalisation of Higher Education. Special Issue of the *Journal for Studies in International Education* (forthcoming).

Collis, David. (1999). *When Industries Change: Scenarios for Higher Education*. Forum for the Future of Higher Education [online]. Available: <http://emcc.mit.edu/forum/toc99book.htm>.

Council of Vice Chancellors and Principals (2000). Bjarnason, S., J. Davies, D. Farrington, J. Fielden, R. Garrett, H. Lund, R. Middlehurst, & A. Schofield. *The Business of Borderless Education*. London: CVCP, HEFCE.

Cunningham, S et al. (2000). *The Business of Borderless Education*. Canberra: DETYA, 2000. http://www.deet.gov.au/archive/highered/eippubs/eip00_3/bbe.pdf.

Daniel, J.S. (1996). *Mega Universities and Knowledge Media. Technology Strategies for Higher Education*. London: Kogan Page.

Davis, D., A. Olson & A. Bohm (eds.). *Transnational Education. Providers, Partners and Policy. Challenges for Australian Institutions Offshore*. Canberra: IDP Education Australia, 2000.

Dos Santos, M. (2000). *Introduction to the Theme of Transnational Education*. Conference of the Directors General of Higher Education and the Heads of the Rectors' Conference of the European Union.

Drucker, P. (2000). Webucation. In: *Forbes*. May 15, 2000

Elliot, D. (1998). Internationalizing British Higher Education: Policy Perspectives. In: Scott, P. (ed.) *The Globalisation of Higher Education*. SHRE/Open University Press, 1998.

European University Association (2001). *Joint Declaration on Higher Education and the GATS (WTO)*. <http://www.unive.ch/eua/En/Activities/WTO/welcome.html>

Gladieux, L.E. & W.S. Swail (1999). *The Virtual University and Educational Opportunity. Issues of Equity and Access for the Next Generation*. Washington: The College Board.

Goldstein, M.B. (2000). To Be [For-Profit] Or Not To Be. What is the Question? In: *Change*, September/October 2000, pp. 25-31.

Green, K. (2001). *The 2001 National Survey of Information Technology in US Higher Education*. <http://www.campuscomputing.net/>

Harley, D. Planning for an Uncertain Future: A US Perspective on Why Predicting the Future is Difficult. In: Collis B. & M.C. van der Wende (Eds.) ICT and the Internationalisation of Higher Education. Special Issue of the *Journal for Studies in International Education* (forthcoming).

Heterick, R. C. Jr., James R. Mingle, & Carol A. Twigg (1997). *The Public Policy Implications of a Global Learning Infrastructure*. A report from the joint NLII-SHEEO symposium on November 13-14, 1997 in Denver, Colorado. <http://www.educause.edu/NLII/>

Hillsberg, T. (2001). Paper presented at the CSHE Symposium "University Teaching as E-Business? Research and Policy Agendas". <http://ishi.lib.berkeley.edu/cshe/projects/university/ebusiness/>

Institute for International Education (2001). *Open Doors 2001: The Annual Report on International Education in the US*. New York: IIE.

Kelly, K. (1998). *New rules for the new economy: 10 radical strategies for a connected world*. New York: Penquin.

Kerrey, B. (2000). *The Power of the Internet for Learning: Moving from Promise to Practice*. The Webbased Education Commission. Washington DC.

Levine, A. (1980). *Why Innovation Fails: The Institutionalisation and Termination of Innovations in Higher Education*. Albany State University of New York Press , 1980.

Levine, A. (2000). The Future of Colleges: 9 Inevitable Changes. *The Chronicle of Higher Education*, 27 October 2000.

McBurnie, G. & C. Ziguas. (2001). "The Regulation of Transnational Higher Education in Southeast Asia: Case Studies of Hong Kong, Malaysia and Australia". *Higher Education*, Vol. 42, No. 1, pp. 85- 105.

McBurnie, G. (2001). Globalization: A New Paradigm for Higher Education Policy. In: *Higher Education in Europe*, Vol. XXVI, No. 1, pp. 11-26

Middlehurst, R. (2001). University Challenges: Borderless Higher Education, Today and Tomorrow. In: *Minerva*, Vol. 39, pp. 3-26

Moe, M. & H. Blodget (2000). *The Knowledge Web. People Power – Fuel for the New Economy*. Merrill Lynch & Co., Global Securities Research and Economic Group.

National Committee for International Trade in Education (2000). *Barriers to trade in education*. <http://www.cqaie.org/ncite.htm>

National Committee for International Trade in Education (2000). *Mission statement of the National Committee for International Trade in Education*. [www.tradeineducation.org]

National Governors Association (2000). *The State of E-learning in the States*. <http://www.nga.org/cda/files/060601elearning.pdf>

Organisation for Economic Cooperation and Development (2001a). *E-Learning the Partnership Challenge*. Paris: OECD/Centre for Educational Research and Innovation.

Organisation for Economic Cooperation and Development (2001b). *Trade in Educational Services: Trends and Emerging Issues*. Working Paper. Paris: OECD/CERI.

Patrinos, H.A (1995). The Private Origins of Public Higher Education in Greece. In: *Journal of Modern Greek Studies*. Volume 13, pp. 179-200.

Taylor, J.C. (2001). *Fifth Generation Distance Learning*. Keynote Address delivered at the 20th ICDE Conference, Dusseldorf, Germany, April 2001.

Trow, M. (1997). The Development of Information Technology in American Higher Education. In: *Daedalus*, Vol. 126 (Issue 4), pp. 293-314.

Twigg, C. (2001). *Quality Assurance for Whom? Providers and Consumers in Today's Distributed Learning Environment*. <http://www.cnter.rpi.edu/PewSym/mono3.htm>

Wende, M.C. van der (2001a). The International Dimension in National Higher Education Policies: What Has Changed in Europe over the Last Five Years? In: *European Journal of Education*, Vol 36, No. 4, pp. 431- 441.

Wende, M.C. van der. (2001b) Internationalisation Policies: About New Trends and Contrasting Paradigms. *Higher Education Policy*, Vol. 14, Issue 3, pp. 249-259.

Wende, M.C. van der. The possibilities and Limits of Virtual Mobility in International Cooperation. In: Proceedings of the SIU/ACA Conference "*The Virtual Challenge to International Cooperation in Higher Education*". Brussels: ACA (forthcoming).

West, R. (1997). *Review of Higher Education Financing an Policy*. (Report of the West Review). Canberra: Department of Education, Training and Youth Affairs.

Whitaker, R. (2001). *Repositioning and Restructuring Continuing Education within the University*. George Washington University.

Ziguras, C. (1999). *Cultural and Economic Issues in Access to Global Online Learning*. Paper. Monash Center for Research in International Education.